UFZ-Seminar „Water and Environment“

HELMHOLTZ ZENTRUM FÜR UMWELTFORSCHUNG UFZ

18 August 2016, 3 p.m.
Seminar Room 1, Brückstr. 3a, Magdeburg

Stan Harpole

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will give a talk on:

Ecological stoichiometry and resource ratio theory predictions for terrestrial plant systems

For autotrophic organisms the stoichiometry of elemental nutrient resources forms the basis for a mechanistic, resource ratio theory of species coexistence. Changes in the supply of multiple limiting resources can lead to loss of diversity and thus have important implications in today’s world where human activities now dominate major nutrient cycles. Resource ratio theory makes several stoichiometric-based predictions for species coexistence, and models can accurately predict the dynamics of unicellular organisms competing for limiting resources in spatially and temporally homogeneous conditions. However, complex plant-soil systems violate most assumptions of simple resource ratio models and thus the theory may have limited application for terrestrial plant systems. Here I review the challenges for applying resource ratio theory to terrestrial plant systems and results from grassland studies testing theoretical predictions. Multiple nutrient limitation, resource stoichiometry-diversity relationships, plant impacts on resources, and plant community responses to changing resource supply, provide multiple lines of evidence and point to the utility of resource ratio theory for understanding plant biodiversity in a world undergoing changes resource supply ratios.